

## SUBJECT INDEX

### A

- Adaptive refinement 285
- Algorithms 33, 81, 87, 91, 203, 264
- Algorithm for finding the intersection lines between two B-spline surfaces 191
- Analysis 134
- Analytical calculation 141
- Appraisal and evaluation 148
- Approximation of spirals by piecewise curves of fewest circular arc segments 87
- Architecture without numbers - CAAD based on a 3D modelling system 321
- Automated design of crankcases: the Carter system 308
- Automatic determination 186
- Automatic recognition of machined surfaces from a 3D solid model 81
- Axissymmetric sections 329

### B

- B-splines 209
- B-spline surfaces 191, 225
- Behavioural simulation 166
- Bezier curve 209

### BOOKS AND PUBLICATIONS

- Adey, R A Engineering software III 179
- Adey, R A Software for engineering problems 234
- Antognetti et al Process and device simulation for MOS-VLSI circuits 340
- Autofact Europe: proceedings of CASA conference 114
- Bakey, T and Klein, S The economics of CAD 340
- Blaser, A and Zoepprit, M Lecture notes in computer science Vol 150: enduser systems and their human factors 232
- Bowyer, A and Woodward, J A programmer's geometry 232
- Bryant, R Very large scale integration 235
- Duncan, J P and Mair, S G Sculptured surfaces in engineering and medicine 341
- Ecarnacoe and Schlehtendahl Computer-aided design - fundamentals and system architectures 340
- Effective CAD/CAM 57
- Ellis, T M R and Semenov, O I Advances in CAD/CAM: proc PROLAMAT82 343
- Gasson, P C Geometry of spatial forms 233
- Greenberg, D, Marcus, A, Schmit, A and Gorter, V The computer image: applications of computer graphics 179
- Horowitz, E Fundamentals of programming languages (2nd Edition) 232
- Kidder, T The soul of a new machine 114
- Kim, W, Batory, D, Hevner, A, Katz, R and Reiner, D Database engineering, Vol 1 234
- Leesley, M E Computer-aided process plant design 115
- Michie, A and Wix, J An overview of computers in the building services industry 115
- Michie, A and Wix, J Computer draughting 114
- Ranky, P G The design and operation of FMS 341
- Saib, S H and Fritz, R E The Ada programming language: a tutorial 178

### Simons, G L Towards fifth-generation computers 233

The road to flexible manufacturing, proceedings of CAM-i international spring seminar 235

Wang, P C-C Automation technology for management and productivity: advances through CAD/CAM and engineering data handling 235

Warman, E A Computer applications in production and engineering 342

### Boolean algebra 17

Building performance 321

### C

- CAAD 148
- CAD for process plants: an update 155
- CAD in architecture and building 148
- CAD in electronics 166
- CADCAM development 172
- CADCAM education and training 172
- Channel router 216
- Channel routing 45, 264
- Circuit design 253
- Civil Engineering 141
- Code of Practice 242
- Combinatorial algorithms 45
- Computer-aided design 242, 321
- Computer-aided hierarchical diagrams 249
- Computer-aided manufacture 25, 161
- Computer-automated process planning 81
- Computer graphics and displays 127

### CONFERENCE REPORTS

- Hungarian seminar on computer aided geometric design 344
- International CAD Congress: data processing in design 83, 113

### Cost-effective CAD/CAM 161

- Crankcases 308
- Creative definition and fairing of ship hulls using a B-spline surface 225
- Cubic spline curves 91
- Current trends in CAD databases 123
- Curved surface generation 329
- Custom VLSI 45

### D

- Database 123
- Data structures 81, 203
- Depth-coherence scanline algorithm for displaying curved surfaces 91
- Design program 242
- Developments of CAD in civil engineering reviewed 141
- DIAG 249
- Dimension matching 299
- Display technologies 127
- Dynamic simulation 335

### E

- Education 13
- Efficiency 51
- Electronics 166
- Electrostatic devices 127
- Enclosures 51
- Error estimates 285
- Evaluation, 123, 87
- Extrapolation 191

### F

- Fifth generation 148
- Finite element analysis 134, 141, 285
- Finite element mesh generation 285
- Finite element method 134
- Folding 2
- Further investigation of segmented Bezier interpolants 186
- Future developments 127
- Future trends 172

### G

- Generalization of the Bernstein-Bezier method 209
- Geometric modelling 161, 285
- Graphic data handling 123

### H

- Hidden surface 91
- Hierarchical channel router 216
- Hierarchical diagramming 249
- Hierarchy 216, 299
- HIMADES-1: a hierarchical machine design system based on the structure model for a machine 299

### I

- Incorporating codes of practice into reinforced concrete design programs 242
- Industrial education 172
- Inflection point generation 186
- Integrated circuit design 166
- Integrity constraints 66
- Interactive computer program for the selection of interference fits 272
- Interactive graphics 314
- Interactive methods 225
- Interference fits 272
- Interrogable building blocks 321
- Intersection 191

### K

- Kinematic analysis 197
- Knowledge engineering 161
- Knowledge representation 308

### M

- Man-machine interaction 321
- Mechanical engineering 13
- Mechanics 308
- Mesh generation 285
- Microcomputers and mechanical engineers 13
- Modelling 335
- Motion analysis 299
- Multi-dimensional solution space 314

### N

- N\*n log m time 216
- Nonlinear transformation 249
- Numerical iteration 272

### O

- Octree 203
- Optimization 314, 321

### P

- Performance 203
- Placement 45
- Placement algorithms for custom VLSI 45

Planar linkages 197  
 Plane curve piecewise approximation 87  
 PLEASURE: a computer program for simple/multiple constrained/unconstrained folding of programmable logic arrays 2  
 Point-in-polyhedron 203  
 Power circuit analysis 279  
 Presque half-planes: towards a general representation scheme 17  
 Probabilistic methods 25  
 Process plant design 155  
 Programmable logic arrays 2  
 Prolog 17, 253

**R**  
 Raster graphics 127  
 Ray casting 51  
 Ray-casting and block model conversion using a spatial index 203  
 Representation 209  
 Representation of compartmented spaces for computer-aided ship design 33  
 Review of solid shape modelling based on integrity verification 66  
 Robot modelling — the tools needed for optimal design and utilization 335  
 Robotics 321

## AUTHOR INDEX

**A**  
 Aish, R and Noakes, P Architecture without numbers — CAAD based on a 3D modelling system 321  
 Allwood, R J and Case, M N Incorporating codes of practice into reinforced concrete design programs 242  
 Anderson, D C see Choi, B K 81  
**B**  
 Barash, M M see Choi, B K 81  
 Barili, A, Cottafava, G and Dallago, E A SPICE2 SCR model for power circuit analysis 279  
 Brady, M A Wire-wrap design aid, written in Prolog 253  
 Bronswoort, W F, Van Wijk, J J and Jansen, F W Two methods for improving the efficiency of ray casting in solid modelling 51  
 Brown, A D Computer-aided hierarchical diagrams 249  
 Buchmann, A P Current trends in CAD database 123  
 Burstein, M and Pelavin, R Hierarchical channel router 216  
**C**  
 Case, M N see Allwood, R J 242  
 Chan, K C see Tan, S T 329  
 Choi, B K, Barash, M M and Anderson, D C Automatic recognition of machined surfaces from a 3D model 81  
 Cottafava, G see Barili, A 279  
**D**  
 Dallago, E see Barili, A 279  
 De Micheli, G and Sangiovanni-Vincentelli, A PLEASURE: a computer program for simple/multiple constrained/unconstrained folding of programmable logic arrays 2  
 Duncan, J M and Yuille, I M Representation of compartmented spaces for computer-aided ship design 33  
**E**  
 Eastman, C M and Preiss, K A review of solid shape modelling based on integrity 66  
**F**  
 Fog, N G Creative definition and fairing of ship hulls using a B-spline surface 225  
 Fouet, J-M see Reynier, M 308

**S**  
 Scanline 91  
 SCRs 279  
 Segmented Bezier curves 186  
 Shell elements 134  
 Ship design representation 33  
 SIMPLA 197  
 Simplified data structure for analysing mechanisms using character handling techniques 197  
 Simulation 279  
 Software 155  
 Solid modelling 51, 66  
 Solution methods 134  
 Spatial indices 203  
 Spatial search 203  
 SPICE2 SCR model for power circuit analysis 279  
 Structure model 299  
 Subdivision 51  
 Subdivision algorithm for axisymmetric sections 329  
 Surface plotting 225  
 Systems architecture 166  
**T**  
 Tangent vectors 186

**G**  
 Giraud, C Presque half-planes: towards a general representation scheme 17  
 Griffiths, J S A depth-coherence scanline algorithm for displaying curved surfaces 91  
**H**  
 Hall, M see Leesley, M E 155  
 Harada, K, Kaneda, K and Nakamae, E A further investigation of segmented Bezier interpolants 186  
 Haslett, T G see Sangakkara, S R 141  
 Hatvany, J Computer-aided manufacture 161  
 Hubbard, R J Computer graphics and displays 127  
**J**  
 Jansen, F W see Bronswoort, W F 51  
**K**  
 Kaneda, K see Harada, K 186  
 Karonen, O see Tamminen, M 203  
 Kitajima, K and Yoshikawa, K HIMADES-1: A hierarchical machine design system based on the structure model for a machine 299  
 Knowles, N C Finite element analysis 134  
**L**  
 Lagodimus, A G and Scarr, A J Interactive computer program for the selection of interference fits 272  
 Lansdown, J and Maver, T CAD in architecture and building 148  
 Leesley, M E, Hall, M and McDonnell, R G CAD for process plants: an update 155  
 Llewellyn, A CAD/CAM education and training 172  
**M**  
 Mantyla, M see Tamminen, M 203  
 Marciniak, K and Putz, B Approximation of spirals by piecewise curves of fewest circular arc segments 87  
 Martins, P D Windowing the solution space of an optimization problem 314  
 Maver, T see Lansdown, J 148  
 McDonnell, R G see Leesley, M E 155  
**N**  
 Nakamae, E see Harada, K 186  
 Noakes, P see Aish, R 321  
**P**  
 Parkinson, D B Tolerancing of component dimensions in CAD 25

3D modelling system 321  
 Tolerancing of component dimensions in CAD 25  
 Topology 299  
 Turnkey systems 155, 161  
 Two algorithms for three-layer channel routing 264  
 2D representation 17  
 Two methods for improving the efficiency of ray casting in solid modelling 51

**V**  
 Visualisation 148  
 VLSI circuit design 264  
 Vocational training 172  
**W**  
 Well formedness 66  
 Windowing the solution space of an optimization problem 314  
 Wire-wrap design aid, written in Prolog 253

Patnaik, L M see Srinivasan, R 264  
 Pelavin, R see Burstein, M 216  
 Peng, Q S An algorithm for finding the intersection lines between two B-spline surfaces 191  
 Piegli, L A generalization of the Bernstein-Bézier method 209  
 Preiss, K see Eastman, C M 66  
 Putz, B see Marciniak, K 87  
**R**  
 Reynier, M and Fouet, J-M Automated design of crankcases: the Carter system 308  
**S**  
 Sangakkara, S R, West, D J and Haslett, T G Developments of CAD in civil engineering reviewed 141  
 Sangiovanni-Vincentelli, A see De Micheli, G 2  
 Scarr, A J see Lagodimus, A G 272  
 Sinha, D K and Thornton-Trump, A B Microcomputers and mechanical engineers 13  
 Slutz, E A see Supowit, K J 45  
 Smith, M R and Ye, Z Simplified data structure for analysing mechanisms using character handling techniques 197  
 Srinivasan, R and Patnaik, L M Two algorithms for three-layer channel routing 264  
 Supowit, K J and Slutz, E A Placement algorithms for custom VLSI 45  
**T**  
 Tamminen, M, Karonen, O and Mantyla, M Ray-casting and block model conversion using a spatial index 203  
 Tan, S T and Chan, K C A subdivision algorithm for axisymmetric sections 329  
 Thomson, C C Robot modelling — the tools needed for optical design and utilization 335  
 Thornton-Trump, A B see Sinha, D K 13  
**V**  
 Van Wijk, J J see Bronswoort, W F 51  
**W**  
 West, D J see Sangakkara, S R 141  
 Wordenweber, B Finite element mesh generation 285  
**Y**  
 Ye, Z see Smith, M R 197  
 Yoshikawa, K see Kitajima, K 299  
 Yuille, I M see Duncan, J M 33

